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EATON CORPORATION
EATON CENTER
1111 SUPERIOR AVENUE
CLEVELAND, OH 44114

EXAMINER	
RIVELL, JOHN A	

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/060,121
Filing Date: January 31, 2002
Appellant(s): BENJEY, ROBERT P.

Anna M. Shih
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed December 20, 2005 appealing from the Office action mailed April 25, 2005.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,606,954	YAMAZAKI et al.	03-1997
5,183,087	AUBEL et al.	02-1993

5,769,057 HASHIMOTO et al. 06-1998

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al (U.S. 5,606,954) in view of Aubel et al. further in view of Hashimoto et al.

The patent to Yamazaki et al ('954), in figure 9, discloses "a system for controlling flow of liquid fuel and vapor during refueling of a motor vehicle fuel tank (21) with a filler tube (22') for receiving a fuel dispensing nozzle (3) comprising: (a) a vent valve (26) disposed in the tank (21) and having an inlet communicating with the vapor dome in the tank (21) and an outlet (connected to conduit 23a) communicating with a remote vapor storage device (canister C);... (c) a recirculation conduit (27_3) having one end connected to admit fuel vapor to the filler tube (at 22a')... and having an end opposite said one end connected to receive fuel vapor from the outlet of said vent valve (at conduit 23a)" as recited in claim 1.

Thus the patent to Yamazaki et al ('954) discloses all the claimed features with the exception of having "a seal disposed in the filler tube and operable for sealing about the nozzle upon insertion therein" and "a neck portion in the filler tube downstream of the location of said recirculation conduit connection location, wherein said neck has the inner periphery thereof sized to receive the nozzle in closely fitting arrangement and to form an effective dynamic seal about liquid discharging from the nozzle"

Firstly, the patent to Aubel et al. discloses that it is known in the art to employ a seal element 24 in fuel filler neck 24, upstream of a vapor dome vent connection at valve 28 for the purpose of preventing fuel vapor leakage to atmosphere about the filling nozzle while permitting recirculation of fuel vapor from the tank dome area back to the filler neck during refueling.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Yamazaki et al ('954) a seal element about the filling nozzle at a location upstream of the dome vapor vent conduit 27_3 in Yamazaki et al ('954) for the purpose of preventing fuel vapor leakage to atmosphere about the filling nozzle while permitting recirculation of fuel vapor from the tank dome area back to the filler neck during refueling as recognized by Aubel et al.

Secondly, the patent to Hashimoto et al. in figure 4, discloses that it is known in the art to employ "a neck portion in the filler tube (3) downstream of the location of said recirculation conduit (113 or 18) connection location (to the filer neck), wherein said neck (appears to have, as shown in figure 4) the inner periphery thereof sized to receive the nozzle (N) in closely fitting arrangement and to form an effective dynamic seal about liquid discharging from the nozzle" for the purpose of effectively creating a fuel "jetting" action causing a negative pressure in the region 21 capable of effectively recirculating fuel vapor from either of the vapor vent conduits 13 or 18 back into the filler neck during refueling.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Yamazaki et al ('954) a neck portion in the filler tube 22' downstream of the location of said recirculation conduit 27_3 connection location to the filer neck, wherein said neck has the inner periphery thereof sized to receive the nozzle 3 in closely fitting arrangement and to form an effective dynamic seal

about liquid discharging from the nozzle for the purpose of effectively creating a fuel "jetting" action causing a negative pressure in the region of the filler neck at the vapor vent connection location 21 effectively recirculating fuel vapor from the vapor vent conduit 27_3 back into the filler neck at 22a" during refueling as recognized by Hashimoto et al.

Regarding claim 2, in Yamazaki et al ('954) "said recirculation conduit (27_3) includes a one-way valve" at 62 as recited.

Regarding claim 3, in Yamazaki et al ('954) "said vent valve (26) outlet is connected to a hose (at 23a) connected to said storage device (canister C); and, said recirculation conduit (27_3) has an end thereof connected to said hose" as recited.

Regarding claim 4, in Yamazaki et al ('954) "said recirculation conduit (27_3) has one end connected through the wall of the tank and an end opposite said one end connected to said filler tube at said location" as shown in figure 6 for example.

Regarding claim 5, in Yamazaki et al ('954) "said vent valve (26) is float (25) operated" as recited.

Regarding claim 6, in view of the relative dimension apparent in figure 4 of Hashimoto et al. it appears that "said neck portion (at fuel filler neck 3)1 has its inner diameter sized about 1 .2 times the nozzle (N) diameter" as recited.

Regarding claims 7-10, in making and/or using the device of the combination above, one of ordinary skill necessarily performs the recited method steps including "(a) disposing a fuel vapor vent valve (26 of Yamazaki et al ('954))... (b) disposing a seal (as at seal 24 in Aubel et al.) in the filler tube for sealing about the dispensing nozzle upon insertion in the filler tube; (c) recirculating fuel vapor to the filler tube (as in Yamazaki et al ('954)) (d) sizing a neck portion" as taught by Hashimoto et al.

Regarding apparatus claims 11 and 12 the comments above concerning the combination of Yamazaki et al ('954), Aubel et al. and Hashimoto et al. apply here as well.

(10) Response to Argument

Appellants sole argument invokes M.P.E.P. §2143.01(V) and the position that modification of a primary reference that results in rendering of the primary reference "unsatisfactory for its intended purpose" renders the currently proffered rejection based on 35 USC §103(a) improper. In support for this position, appellant argues that modification of the Yamazaki et al. device as proposed would render the device "non functional" in that, by incorporating the fuel nozzle seal of Aubel et al. the resultant device would:

> "prevent outside air from being drawn in with the rushing fuel to regulate the amount of fuel vapor in the filler neck. (This) seal would interfere with the amount of fuel vapor generated in the filler neck because the seal is designed to prevent vapor from escaping (col. 3, lines 22-26). If Aubel's pressure tight seal were incorporated into the filler neck in Yamazaki, outside air would be blocked from being drawn in along with the rushing fuel, thereby creating a vacuum around the pressure inducing hole 3a of Yamazaki. This pressure drop would, in turn, shut off the nozzle prematurely... (thus rendering) Yamazaki unsatisfactory for its intended purpose".

This argument is unpersuasive in view of the express teachings of Aubel et al. Appellants arguments rely on a "premature closing" of the filling nozzle of Yamazaki et al. as modified. However, as taught by Aubel et al. at column 3, lines 29-63, standard filling nozzles are pressure sensitive and that, in the disclosed embodiment in which a nozzle seal 24 is employed, as well as recirculation of fuel vapor from above the liquid in the tank back to the filler neck via vent line 16, 22 to port 28:

"As fuel continues to be pumped into the tank system, the vapor V continues to recirculate through the vent tube 16 (and 22) and simultaneously flow to the storage canister 6 through the high flow valve 12. The fuel level in the tank 10 will continue to increase until it reaches the preset 'full' level which is established by the bottom of the vent tube 16 extending into the tank 10. Once the bottom of the vent tube 16 is immersed in liquid, the vapor V recirculation to the fill neck 20 is eliminated, thus reducing the vapor pressure at the mouth of the fill nozzle 8. Since most common fill nozzles 8 utilize a pressure sensitive automatic shut-off for the fuel flow, the drop in vapor pressure caused by the deletion of vapor recirculation will cause the fill nozzle 8 to discontinue supplying fuel."

Thus Aubel et al. acknowledges the actuation of a standard filling nozzle when used with a filler neck that includes a vapor seal element which precludes the venting of fuel vapor to the atmosphere through the filler neck/nozzle arrangement during refueling of the tank. While the stated purpose of Yamazaki et al. may be for the unemployment of the "conventionally used seal" as described by Yamazaki et al. at column 5, lines 24-55, the resulting operation of the embodiment of figure 9 merely minimizes the escape of fuel vapor to the atmosphere. By adding a seal element as taught by Aubel et al. one would prevent the escape of fuel vapor to the atmosphere. Moreover, as described at column 8, line 23 through column 9, line 65 of Yamazaki et al. which describes the operation of the embodiment of figure 9, it is clear that employing certain draft resistances in the vapor conducting paths 23, 27_3 "effectively (suppresses) the release of fuel vapor tot eh atmosphere" as disclosed in Yamazaki et al. However, the addition of a nozzle seal effectively eliminates the venting of fuel vapor to the atmosphere and to employ the device of Yamazaki et al. with a nozzle seal would only require employment of a certain draft resistance in conduits 23, 27_3 which would accommodate standard pressure sensitive filling nozzles.

Concerning the addition of the teachings of Hashimoto et al., appellant again asserts that the modifications proposed would render the resultant device "inoperative

for the intended purpose" by again relying of the resultant device to include a fuel nozzle which will close prematurely.

This argument is unpersuasive in that as taught by Hashimoto et al. at column 6, line 62 through column 7, line 54, which describes the operation of the embodiment of figure 4, once the vapor valve 26 within the tank closes as a result of a certain level of fuel within the tank, an operation performed by Yamazaki et al. at vapor vent valve 256 as well, the recirculation of fuel vapor is stopped, the level of liquid rises in the filler neck and the increase in pressure within the filler neck, as a result of the rising liquid level in the filler neck, is sensed by the standard filling nozzle to close off the supply of fuel. The close dimensions of the outside diameter of the fill nozzle N and the inside diameter of the filler neck 3 shown in figure 4 effect a "jet" to entrain fuel vapor into the filler neck fed by the vapor vent tube 18 and, because there is no seal around the filler nozzle N, some atmospheric air. This arrangement merely increases the recirculation of fuel vapor through the vent path from above the liquid fuel in the tank. However, it is the drop or loss of vapor pressure caused by a cessation of fuel vapor recirculation, generally caused by the float vapor vent valve in the tank closing upon a certain liquid level of fuel within the tank that causes the increase in pressure that operated the standard filling nozzle as taught by Aubel et al.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the secondary

reference to Aubel et al. is relied on for the teaching of a filler nozzle seal element receiving the filling nozzle and the close off a fluid flow path around the filler nozzle to preclude the venting of fuel vapor to the atmosphere. The secondary reference to Hashimoto et al. is relied on for the teaching of close dimensions of the outside diameter of the filler nozzle and the inside diameter of the filler neck to effect a "jet" to entrain fuel vapor back into the fuel tank my supplying the entrained fuel vapor with incoming liquid fuel.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

John Rivell
Primary Examiner
Art Unit 3753

Conferees:

John Fox
Primary Examiner
Art Unit 3753

Gene Mancene
Supervisory Primary Examiner
Art Unit 3753